

IN THE CLAIMS

1. (Currently amended) A procedure method of intervention for correcting vision in an eye of a patient caused by defects in the cornea, eye said procedure method being performed with the aid of a computer system, said method comprising the steps of:

(a) inputting categorical data for an eye of the patient with visual correction methods and outcomes;

(b) inputting continuous data for said eye with visual correction methods and outcomes;

(c) examining the patient's said eye and building an optical model of said patient's eye including mapping input light rays and output light rays having a given intersection;

(d) comparing said model with said categorical and said continuous data with visual correction methods and outcomes;

(e) generating ~~an initial~~ a procedure ~~recommendation~~ for said patient's eye with a predicted outcome;

(f) comparing said predicted outcome with said categorical and continuous outcomes to determine acceptability; and

(g) performing said procedure when the predicted outcome is acceptable.

2. (Original) The procedure of claim 1 including the steps of iterating modifications of said procedure and comparing said predicted outcomes until a predicted outcome is acceptable.

3. (Original) The procedure of claim 1 including the step of inputting data from patient's

2 said eye including visual correction method and outcome, and evaluating the outcome on ~~patient's~~
3 said eye.

1 4. (Original) The procedure of claim 1 wherein said computer system includes a display
2 means for viewing said predicted outcome.

1 5. (Currently amended) The procedure of claim 1 wherein an RTE means is provided for
2 converting said categorical and said continuous data ~~pass through a ray transfer element for~~
3 ~~converting said data~~ to wavefront aberrations.

1 6. (Currently amended) The procedure of claim 5 wherein said ~~ray transfer element means~~
2 ~~adapts said optical model to include~~ categorical and said continuous data include wavefront
3 aberrations of past surgical procedures, thereby improving projections for subsequent procedures.

1 7. (Currently amended) A method of optimizing the predictability of a vision correction
2 method comprising the steps of:

3 (a) inputting a set of categorical data points for an eye with visual correction methods;

4 (b) inputting a set of continuous data points for an eye with visual correction methods;

5 (c) inputting outcome data points for visual correction methods;

6 (d) examining a patient eye and building ~~an optical~~ a model of said patient eye, said model

7 based on optics within said patient eye;

8 (e) selecting a visual correction method for said patient eye based on said outcome data and
9 generating an initial procedure recommendation;

10 (f) predicting the outcome of said initial procedure recommendation for said patient eye;

11 (g) evaluating said predicted outcome for acceptability; and

12 (h) iterating a modification of said initial procedure recommendation and re-evaluating the
13 predicted outcome until predicted outcome is acceptable.

1 8. (Currently amended) A method of optimizing the predictability of a vision correction method
2 of claim 7 including the steps of:

3 (i) (a) performing the procedure on said patient eye;

4 (j) (b) evaluating the outcome of said procedure; and

5 (~~k~~) (c) updating data points.

NEW CLAIMS

1 9. A method of optimizing the predictability of a vision correction method of claim 7
2 comprising the steps of:

3 (a) said examining including providing an incident light ray to said eye, said incident light ray
4 transmitted by said eye at an angle, said incident light ray and said transmitted light ray having an

5 intersection point in a meridional plane; and

6 (b) computing the difference in elevation and azimuth between said incident ray and said
7 transmitted ray to rotate said incident ray to coincide with said transmitted ray.

1 10. A method of optimizing the predictability of a vision correction method of claim 7
2 comprising the steps of:

3 (a) evaluation of historical cases for similar data in terms of categorical and continuous data, ;

4 (c) select closest historical cases;

5 (d) average the actual postoperative outcome of said selected cases; and

6 (e) apply said average to said optical model.

1 11. In a method of constructing a model of the eye for improved vision utilizing optical
2 projections comprising the steps of:

3 (a) establishing a wavefront for an eye;

4 (b) providing a planar RTE oriented generally normal to the optical axis of said eye for passage
5 of an incident light ray into said eye resulting in an outgoing light ray having an exit point in said
6 eye;

7 (c) locate the intersection point of said incident light ray and a vector orthogonally intersecting
8 said wavefront from said exit point;

9 (d) extending said vector to intersect said RTE;

10 (e) compute the mapping change in elevation and azimuth angles at said RTE necessary to rotate

11 said incident ray to coincide with said vector and improve vision.

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